

ACTIVITIES FOR “CLEAN MACHINE”

THEME: *Renewable energy sources include solar energy (from the sun), hydropower (from water), wind power (from the wind), geothermal energy (created by underground steam) and biomass energy (landfill gases). They are called renewable because the supply will never run out.*

SOLAR ENERGY: We all know that the sun heats the earth. Just walk outside in the summer, and you can feel the sun heating your skin. Solar panels can be set up to collect the energy of the sun and turn it into electricity.



EXPERIMENT: Demonstrate the power of the sun.

Make Solar Prints

Solar prints are a special kind of photography that use sunlight to create images on paper.

You Will Need:

- Some nature objects
- A tray or stiff piece of cardboard
- Light-sensitive paper (You can buy this at a hobby, photography, or toy store, or use blueprint paper.)
- Water
- Dishpan or square cake pans
- Clothespins or newspaper

How to Make Solar Prints:

Step 1: The pictures you will make will show the outline of the items you choose, so gather leaves and flowers with interesting shapes.

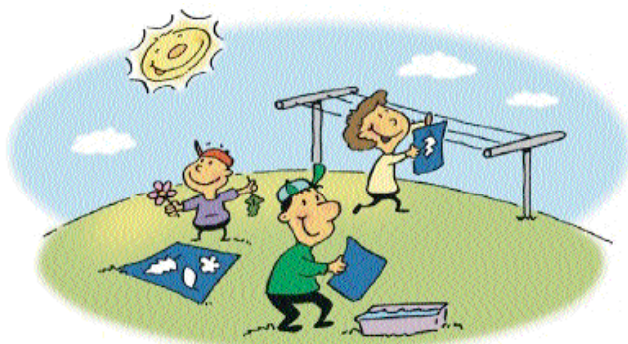
Step 2: Fill the dishpan with water. You will use this later.

Step 3: When you are still inside, arrange some of the objects on light-sensitive paper on a surface you can carry. Be sure to keep the paper away from the light until your objects are all arranged.

Step 4: Put the paper in direct sunlight. Wait about five minutes.

Step 5: Take off the objects and dip the paper in water to set the image. Lay out the paper to dry or hang on a clothesline.

Solar-printed paper makes great stationery and greeting cards.



ACTIVITIES FOR “CLEAN MACHINE” (continued)

WIND POWER: Clean, renewable, wind energy produces pollution-free electricity that powers millions of American homes.

Make a miniature wind turbine

Pinwheels are like wind turbines. They turn when the wind blows on the blades.

You Will Need:

- Heavy Paper
- Crayons, markers or paint
- Scissors
- A thumbtack
- A pencil with an eraser on one end

How to make a pinwheel:

Step 1: Cut a square out of paper and decorate it.

Step 2: Fold it in half like a triangle, open and fold it the other way. Cut along the folds, stopping 2/3 of the way to the center.

Step 3: Bring every other tip just past the center.

Step 4: Push the thumbtack through the center (and all layers), and into the side of the pencil eraser.

Step 5: Hold the pencil and blow straight into the pin-wheel so it goes round! Pretend you're the wind, blowing on a wind turbine. When the blades go around, the turbine makes electricity.



LANGUAGE ARTS: Before the days of the internet, mega-malls and micro technology, people used all kinds of “clean machines” in everyday life. Discuss how people used to live, and compare it to how things are commonly done today. How did people communicate (writing a letter vs. sending an email)? How did people get around (riding a horse instead of jumping in the SUV)? How were clothes dried (a clothesline as opposed to a clothes dryer)? What methods are still practical in the modern world?



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